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A Message from
Michael Gruenthal, MD, PhD

Advanced, multidisciplinary care, research and teaching are the defining characteristics of an academic medical center. The next few pages outline some of the major programs and related contributions made by neurology faculty, residents and staff in 2009. I take great pride in their dedication to patient care, their educational efforts and their growing research contributions.

In 2009 our clinical programs continued to grow. Dr. Colum Amory joined the stroke program after completing a stroke fellowship at Mt. Sinai Medical Center in New York. Dr. Krupa Pandey joined the Multiple Sclerosis program after completing a demyelinating diseases fellowship, also at Mt. Sinai. Dr. Bridget Frawley joined the Epilepsy Program after completing a clinical neurophysiology fellowship here at Albany Medical Center.

Our achievements would not be possible without the generous support of our benefactors, the support and collaboration of faculty in other departments, and the institutional commitment to excellence.

Michael Gruenthal, MD, PhD
Professor and Bender Chair
Department of Neurology
Departmental Divisions

Alzheimer’s Disease and Related Disorders
Earl Zimmerman, M.D. (Director)
Dzintra Celmins, M.D.
Elizabeth Smith-Boivin, MSHA

Epilepsy and Human Brain Mapping
Anthony Ritaccio, M.D. (Director)
Bridget Frawley, M.D.
Michael Gruenthal, M.D., Ph.D.
Asygul Gunduz, Ph.D.
Timothy Lynch, M.D.
Gerwin Schalk, Ph.D.
Peter Brunner, M.S.
Lisa Faist, NP.

Parkinson’s Disease and Movement Disorders
Eric Molho, M.D. (Director)
B. Kelly Changizi, M.D.
Donald Higgins, M.D.

Multiple Sclerosis
Krupa Pandey, M.D. (Director)
Jeanne Ceballos, NP.

Neuromuscular Disorders and Neurophysiology
Matthew Murnane, M.D. (Director)

Neuropsychology
Anne Barba, Ph.D. (Director)
Robert Gillen, Ph.D. (Sunnyview)

Comprehensive Pain Management
Charles Argooff, M.D. (Director)
Andras Laufer, M.D. (Anesthesiology)
James Wymer, M.D., Ph.D.

Pediatric Neurology
Charles Nichter, M.D.
Karen Powers. M.D.
Janet Morgan, NP.
Valerie Stanley, NP.

Stroke/Neurocritical Care
Gary Bernardini, M.D., Ph.D. (Director)
Colum Amory, M.D., M.P.H.
Jennifer Yanoschak, M.D.
Yama Rassouly, NP.

Stratton VA Neurology Service
Donald Higgins, M.D., (Chief)
Arnulf Koeppen, M.D.
Farrukh Shaikh, M.D.
Richard Tomasulo, M.D.
Unprecedented demand for expert clinical services and expansion of clinical programs resulted in continued increases in faculty productivity. Annual work Relative Value Units (RVUs), a standardized measure of productivity, grew steadily for both E&M services (outpatient and inpatient evaluation and management) and non-E&M services (procedures).
The advanced level of inpatient care provided by our faculty and neuroscience nurses resulted in over 200 transfers from other hospitals in New York, Massachusetts, Vermont and Connecticut. Our unique ability to provide the entire spectrum of medical and surgical treatments for acute stroke, epilepsy and other neurological conditions allows us to serve as a resource for other hospitals in the region. In 2009, we enhanced our ability to provide acute stroke care to the residents of Saratoga County by creating a unique partnership with Saratoga Hospital. Saratoga Hospital Emergency Department physicians now have a dedicated, secure, high-speed connection enabling them to share images and other data as they discuss management strategies with our stroke team.
Alzheimer’s Disease and Related Disorders

There are many possible causes for memory loss and dementia, including Alzheimer’s disease, frontotemporal dementia, Lewy body disease, metabolic abnormalities and normal pressure hydrocephalus. After a thorough evaluation to identify the underlying cause and develop a treatment strategy, we provide a comprehensive range of support services to assist patients and families who are dealing with the effects of neurological memory disorders caused by age-related dementias. The Alzheimer’s Center is the foremost comprehensive provider of care for patients and families suffering from Alzheimer's disease and related dementias in the greater Capital Region. Through its four components, the Aging and Memory Clinic, the Alzheimer's Disease Treatment Center, the Goldberg Resource Program for Patients and Families, and the Alzheimer's Research Program, the multidisciplinary team provides excellence in patient care, education, and research.

The Neurosciences Advanced Imaging Research Center, a partnership between General Electric Global Research Center and Albany Medical Center’s Neurosciences Institute, includes the only 3T MRI scanner in the region. Our team of physicians and scientists use this technology to identify causes of neurodegenerative disease, evaluate therapeutic interventions, and measure the effectiveness of drugs. In the long term, we hope to identify people at risk for these diseases and institute therapies before the onset of the disease.
Epilepsy is a chronic disorder characterized by recurrent seizures and is one of the most common neurological disorders. Seizures can have many symptoms ranging from brief sensations, movements, or confusion to convulsions. The frequency of these episodes range from more than once a day to less than once a year. Because the symptoms and frequency of seizures are so variable, making a diagnosis of epilepsy can be difficult. Some people with epilepsy experience seizures for several years before a correct diagnosis is made. For over 20 years, Albany Medical Center’s Epilepsy Program has been a leader in the medical and surgical treatment of epilepsy. The success of epilepsy treatment depends on a detailed and accurate evaluation prior to therapy. All of our neurologists have subspecialty training in the diagnosis and treatment of epilepsy. The comprehensive diagnostic and treatment options we provide have earned us a designation as the only National Association of Epilepsy Centers “Level 4” center in the region, the highest level of certification.

In 2008, the program received a multimillion dollar, multi-year federal grant to develop better techniques for mapping brain function. This essential component of epilepsy surgery and surgery for some brain tumors requires electrical stimulation of brain tissue, and has been unchanged since it was devised in the 1950s. We are developing the ability to localize very specific brain functions in real time without electrical stimulation by “listening” to human brain signals.
Parkinson’s Disease and Movement Disorders

Movement Disorders are a group of conditions characterized by loss of normal movement or the presence of abnormal movements. Although weakness may be a symptom, movement disorders typically result in other problems including slowed movements, difficulty with smooth, coordinated movement, or involuntary movements. A variety of other symptoms may be present as well, depending on the specific condition.

There are many diseases and conditions that result in these symptoms including dystonias, Parkinson’s disease, other Parkinsonian syndromes, Huntington disease and restless legs syndrome. A detailed evaluation by a neurologist with specific training and expertise in movement disorders is often needed to make a diagnosis and develop an effective treatment strategy. All of our neurologists have subspecialty training in the diagnosis and management of these conditions. They have devoted their clinical practice and academic work to this specific area of neurology. The entire staff has extensive experience helping patients and hope is to use this unique experience to improve the lives of patients and their families. As an academic medical center program, we are able to offer advanced diagnostic, treatment and research capabilities, as well as clinical drug trials, botulinum toxin injection and innovative surgical procedures such as deep brain stimulation.
Multiple Sclerosis

Multiple Sclerosis is a condition characterized by recurrent damage to the brain or spinal cord. The symptoms depend on where the damage occurs. Typical symptoms include weakness or sensory loss on one side of the body, impaired vision in one eye or double vision, loss of coordination, or bladder incontinence. In the most common form of multiple sclerosis, symptoms will worsen over minutes or days and then gradually improve over several weeks. The interval between episodes may be weeks or years.

Many other conditions can cause similar symptoms, so a detailed evaluation by a neurologist with special training in multiple sclerosis may be necessary to establish the correct diagnosis. The diagnosis requires a detailed history and examination as well as several tests to look for evidence of multiple sclerosis and exclude other causes. There is no cure for multiple sclerosis, but there are many treatment options which can decrease the number, severity and duration of episodes.

Albany Medical Center has the regions only designated comprehensive multiple sclerosis program affiliated with the National Multiple Sclerosis Society. The subspecialty trained physicians see some of the most complex cases of multiple sclerosis. We provide a complete range of treatments including intravenous infusion of medications and implantation and programming of baclofen pumps.
Neuromuscular Disorders and Neurophysiology

Neuromuscular disease is a very broad term that encompasses many diseases that impair the functioning of the muscles either directly (by damaging muscles) or indirectly (by damaging nerves). In addition to weakness, muscle disease may cause twitching, spasming, and muscle pain depending on the nature and severity of the condition. Specialized diagnostic tests are necessary to reveal the specific type of neuromuscular disorder causing these symptoms. Some of these conditions are hereditary, others are symptoms of diseases such as diabetes. Our comprehensive clinical neurophysiology laboratory has state-of-the-art EMG/nerve conduction velocity equipment. Our subspecialty trained and board certified neuromuscular neurologists are experts in the use of this equipment, ensuring accurate information from these complex tests.

Albany Medical Center has the only designated neuromuscular program in the area recognized by the Muscular Dystrophy Association. The subspecialty trained physicians treat a wide variety of hereditary adult and pediatric neuromuscular diseases.
Clinical neuropsychology is the science of brain function. Different parts of the brain have specific functions such as vision, memory, the ability to speak, the ability to read, etc. Clinical neuropsychologists are experts in the administration and interpretation of specialized tests to help determine which areas of the brain are not working properly.

Many disorders that affect the brain can cause difficulties with thinking, reasoning, judgment, understanding and memory. A cognitive assessment is used to determine the specific nature of these problems and their severity. The information obtained during the assessment is used to help make a correct diagnosis and prognosis, and to track the effectiveness of treatment.

A neuropsychological assessment involves an interview to gather detailed information about symptoms, medical conditions, habits, education, and other factors needed to plan and interpret the test results. Specific ‘pencil and paper’ tests are then administered, typically over one or more periods of several hours.

Our clinical neuropsychologists are experts in the specialized tests needed for the diagnosis and comprehensive management of Alzheimer’s disease, Parkinson’s disease, epilepsy and other conditions that affect the brain. Their assessments are an essential component of our epilepsy surgery and deep brain stimulation programs. Neuropsychologists work alongside physicians and nurses as part of the multidisciplinary teams dedicated to the diagnosis and treatment of these complex conditions. Each patient undergoes a comprehensive evaluation tailored to their unique circumstances, and the results are reviewed and discussed with the team in order to identify the best possible treatment options.
A variety of nervous system disorders occur in children. Some of these are unique to children, such as muscular dystrophy, while some also occur in adults, such as headache, involuntary movements, seizures and strokes. Because the symptoms, diagnosis, prognosis and treatment for these conditions are different in children, the special skills and expertise of pediatric neurologists is needed. Our specially trained pediatric neurologists have expertise in diagnosing and treating disorders of the nervous system in children, which comprise their sole area of concentration. Like their adult neuroscience colleagues in the Albany Medical Center academic environment, they have particular subspecialty expertise in a specific area such as muscle disease, headache and movement disorders.
Comprehensive Pain Management

Pain is usually a brief sensation, but in some instances the brain receives constant or repetitive signals which are interpreted as painful, leading to a condition known as “chronic pain.” Symptoms may range from frequent headaches to episodes of sharp, stabbing pain to a constant burning or tingling sensation. These conditions require the expertise of a pain management specialist.

Our comprehensive pain management program uses a multidisciplinary approach to the diagnosis and treatment of chronic pain. The team of specialists includes neurologists, neurosurgeons, anesthesiologists, physiatrists, psychiatrists and others who work together to identify the underlying cause and best treatment options for patients. The team will work to evaluate and manage not only the pain itself but other factors such as anxiety, depression, family issue and quality of sleep – all of which can affect how we feel pain.

A full spectrum of therapies, ranging from simple relaxation techniques to the most advanced implantable devices, is available. A comprehensive treatment plan for chronic pain may include:

- Medication
- Injections
- Spinal Stimulation
- Intrathecal Medication Management
- Chiropractic Treatment
- Psychological Counseling
- Exercise Programs
- Physical Therapy

Our pain specialists are at the forefront of research on chronic pain, working in the laboratory and in the clinic to identify underlying causes and discover better treatments.
A stroke occurs when there’s a disturbance in the amount of blood delivered to part of the brain, resulting in injury to brain tissue. Most strokes are due to a blocked blood vessel, but rupture of a blood vessel can also cause a stroke. The severity of strokes can range from mild to life-threatening, but a stroke is always an emergency requiring rapid diagnosis and treatment.

In the past, strokes often resulted in permanent brain damage and disability. Several new treatment options have changed that. Many people with strokes can now receive treatments that either eliminate or minimize the impairments. In order to be effective, these treatments must be administered urgently, often in less than three hours after the onset of symptoms.

Our Stroke Team is lead by physicians with specialized fellowship training in the diagnosis and treatment of stroke. They offer a full array of treatment options ranging from injections of “clot busting” drugs to clot removal devices that are used to reopen blocked blood vessels. These intravenous clot busting drugs can only be used within 3 hours of the onset of symptoms. At Albany Medical Center, the stroke team has advanced procedures that may treat stroke 6-8 hours after the onset of symptoms, however, all therapies require a stroke victim to get to the hospital right away.

The high standards and outcomes of the stroke team have resulted in special certification from The Joint Commission and from the New York State Department of Health, as well as honors and awards from the American Stroke Association.
As knowledge of disease states advances, patient problems increasingly cross traditional departmental boundaries. The Neurosciences Institute at Albany Medical Center provides an organizational framework within which we are creating integrated, multidisciplinary programs. This approach gives our patients access to the depth and breadth of faculty expertise from various departments, all working together to provide coordinated care. These programs continued to grow in 2009.

Muscular Dystrophy Association (MDA) clinic- Adult and pediatric neuromuscular neurologists, physiatrists, pulmonologists, cardiologists and others participate in the region’s only program supported by the MDA. The MDA provides care coordination and funds to offset some of the costs associated with genetic testing and healthcare services.

Pediatric brain tumor clinic- Pediatric neurologists, pediatric neurosurgeons, pediatric oncologists and others bring their expertise to assist in the comprehensive management of children with tumors of the nervous system.

Multidisciplinary epilepsy surgery conference- Neurologists, neurosurgeons, neuropsychologists, EEG technologists and others meet weekly to decide which patients are likely to benefit from surgical treatment for epilepsy.

Comprehensive pain management- Neurologists, anesthesiologists, physiatrists, neurosurgeons and others combine their unique diagnostic and procedural skills for the benefit of patients with chronic pain.
We were awarded over $2.3 Million in 2009 from continuing and new Federal grants and contracts, industry sponsored trials and income derived from donations. These essential non-clinical sources of revenue allow us to contribute to the research and teaching missions of Albany Medical Center. Our research funding reflects the dedication and talent of our faculty and research staff. We are indebted to our extraordinarily generous benefactors who allow us to explore new opportunities for research, disseminate information about our discoveries in the form of seminars and symposia, and provide our residents and fellows with enriching educational experiences. Recent faculty and resident publications are listed below.
Education

In 2009, neurology faculty continued their active participation in the education of medical students, residents and fellows.

- We provided a series of clinical correlations for the first year Neuroscience Course.

- Drs. B. Kelly Changizi and Timothy Lynch took over as directors for the second year Neuroscience Course. This month long intensive experience provides a comprehensive introduction to clinical neuroscience.

- All 4th year medical students spend one month with us learning inpatient and outpatient neurology. They spend time in subspecialty and general neurology clinics, and rotate on our general neurology, neurology consultation and stroke/neurocritical care services.

The Neurology Residency Training Program is fully accredited to provide advanced training in adult neurology. Sixteen residents train in the four-year program, beginning with an integrated initial year in Internal Medicine. The rich resources of our faculty, the faculty in other departments and the institutional emphasis on high quality patient care create a collegial environment in which residents rapidly develop advanced skills in neurological diagnosis and treatment. In 2009, we received over 500 applications for 4 positions, and anticipate another highly successful match. The vast majority of our graduating residents enter fellowship training programs, as shown below:
Advanced fellowships provide subspecialty training for neurologists who have completed residency training. We offer fellowship training in Clinical Neurophysiology, Stroke and Movement Disorders.

Clinical Neurophysiology fellows may select between Epilepsy/EEG and Neuromuscular Disease/EMG as the focus of their training, but receive detailed instruction in extracranial and intracranial EEG interpretation, evoked potentials, electromyography and nerve conduction techniques and polysomnography.

Stroke fellows receive intensive training in the medical and interventional management of acute stroke and secondary stroke prevention, management of patients in the Neuroscience Intensive Care Unit and techniques of transcranial Doppler ultrasonography.

Movement Disorder fellows received advanced training in the diagnosis and treatment of the full spectrum of these conditions. They learn advanced management strategies including deep brain stimulation and the use of botulinum toxin.
## Residents

### PGY1
- Amber Mitchell, MD
- Harsha Nagaraja, MD
- Chrystal Reed, MD, PhD
- Xianping Zhou, MD, PhD

### PGY2
- Kelly Donnelly, DO
- Manpreet Kaur, MD
- Richard Monroe, MD
- Kathleen Ward, MD

### PGY3
- Ryan Gianatasio, MD
- Ayman Ibrahim, DO
- Rohit Marawar, MD
- Rekha Velisetty, MD
- June Wang, MD, PhD

### PGY4
- Joy Meng, MD
- Cathy Sims-O’Neil, DO
- Konstantin Timofeev, MD
Faculty publications

Dr. Amory


Dr. Argoff


Dr. Barba


Dr. Bernardini


Dr. Celmins


Dr. Changizi


Dr. Frawley


Dr. Gruenthal


Dr. Higgins


Higgins, DS, Barba, AL, Milkmaid’s Grip, In Kompoliti K, Verhagen L, eds. Encyclopedia of Movement Disorders. New York, NY; Elsevier; 2010


Dr. Koeppen


Dr. Lynch


Dr. Pandey


Dr. Ritaccio

Schachter, SC., Guttag, J., Schiff, S., Schomer, DL., and Summit Contributors (incl. Ritaccio, AL). Advances in the Application of Technology to Epilepsy: The CIMIT/NIO. Epilepsy and Behavior, 2009, in press.


Dr. Zimmerman

Zimmerman EA, Desemone J. Ideal management of diabetes mellitus and dementia: walking a tight rope between hyper and hypoglycemia. Arch Neurol 2010; 67:131-133


Resident publications

